PB-215 484

SUMMARY OF CONFERENCE AND CONCLUSIONS AND RECOMMENDATIONS ON INTERSTATE AIR POLLUTION NEW YORK-NEW JERSEY METROPOLITAN AREA

Department of Health, Education and Welfare
Washington, D.C.

January 1967

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National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151

PB 215 484

SUMMARY OF CONFERENCE

and

CONCLUSIONS AND RECOMMENDATIONS

on

INTERSTATE AIR POLLUTION

NEW YORK-NEW JERSEY METROPOLITAN AREA

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U S Department of Commerce
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U.S. Department of Health, Education, and Welfare
Washington, D.C.

RECOMMENDATIONS BY THE SECRETARY
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

It is found that effective progress toward abatement of the air pollution discussed at this Conference is not being made, and that the health and welfare of persons in the 17-county area is being endangered. It is therefore recommended that necessary remedial action be taken. The following recommendations, it may be noted, were unanimously concurred in, except for Recommendation I. Regarding this Recommendation, all participants concurred in principle. (To facilitate reference, these recommendations have been placed ahead of the Conference summary, which discusses the information forming the basis for the recommendations.)

RECOMMENDATION I
INTERSTATE AIR POLLUTION CONTROL AGENCY

In order to deal with the bi State air pollution problem on a regional basis, an appropriate interstate agency must be vested with adequate legal authority. Such legislation for this purpose should provide:

1. Authority to establish ambient air quality standards for at least the 17-county area, i.e., Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset and Union Counties in the State of New Jersey; and the five counties of New York City as well as the counties of Nassau, Rockland, and Westchester in the State of New York;

2. Adequate rule-making power and enforcement authority to abate, control and prevent air pollution originating in at least the 17-county New York-New Jersey metropolitan area, and to make the maximum effective utilization of existing local resources for inspection and enforcement.

3. Effective representation of local governments in the 17-county bi-State area on State delegations on the Interstate Agency, and

4. Federal representation on the interstate agency with the same vote as any State.

This Abatement Conference shall remain in continuing session, subject to the call of the Presiding Officer or his designated representative, until an interstate regional air pollution control agency with adequate legal authority as outlined above, is established, staffed, and effectively operational.

RECOMMENDATION II
CONTROL OF EMISSIONS OF SULFUR DIOXIDE FROM EXISTING POWER GENERATION PLANTS

It is found:

a) That in order to protect health and welfare of residents in the bi-State metropolitan area, the New York State Ambient Air Quality Objectives already adopted for the New York State portion of the area should be applied over the entire area. These standards provide that a 24-hour average concentration of sulfur dioxide shall not exceed 0.1 ppm by volume more than 1% of the time and shall not exceed 0.25 ppm by volume on an hourly basis more than 1% of the time.

b) That these levels are consistently exceeded in a considerable portion of the area.

c) That the evidence in the record shows that nearly 40% of the annual emissions of this toxic, corrosive gas into the atmosphere of the 17-county area emanates from steam and electric-power generating plants.

Therefore, as an immediate measure to be taken, it is recommended:

That all steam and electric power generating facilities producing steam or electric power for sale currently existing within the 17-county, bi-State area not be permitted to burn fuel containing in excess of 1.0% sulfur by weight beyond October 1, 1969, unless they have installed effective means to control sulfur oxide emissions (calculated as sulfur dioxide) to an equivalent level. Local programs can, and should be encouraged, to meet the above target prior to the deadline recommended.

RECOMMENDATION III
CONTROL OF EMISSIONS OF SULFUR DIOXIDE FROM NEW OR EXPANDED EXISTING POWER GENERATION PLANTS

It is found:

a) That present electric generating capacities for the area must be increased; and

b) That it must be ensured that meeting these increased demands for electribity does not impose and additional burden on the health and welfare of the bi-State community.

It is therefore recommended that:

After July 1, 1967, no new power generating facilities or expansion (or major reconstruction) of existing facilities be allowed within the 17-county, bi-State area of New York and New Jersey, unless evidence is presented guaranteeing an assured 20-year supply of low sulfur fuel which would not allow emissions at any time to exceed 0.35 lbs. of sulfur dioxide per million BTU gross heat input, or unless it can be shown that demonstrated effective means will be employed to control sulfur oxide emissions to an equivalent level.

RECOMMENDATION IV
CONTROL OF EMISSIONS OF SULFUR DIOXIDE FROM SPACE HEATING

It is found that:

a) That the use of sulfur-rich fuels for space heating and other domestic or commerical uses is responsible for more than 50 per cent of annual emissions of this contaminant; and

b) That not only do these emissions sharply increase in the winter months, but they are released relatively close to ground level where people live and work.

It is therefore recommended that:

1) Fuel utilized for space heating or for other domestic, commercial and industrial uses within the 17-county bi-State area after October 1, 1969, shall be natural gas, coal containing not in excess of 0.2 per cent sulfur by weight or oil containing not in excess of 0.3 per cent sulfur by weight.

2) Local, State, and Federal agencies be strongly urged to comply with this standard at an even earlier date, to demonstrate their desire to provide guidance to private sectors of the community.

RECOMMENDATION V
CONTROL OF EMISSIONS OF SULFUR COMPOUNDS FROM INDUSTRIAL PROCESSES

It is found:

That specific point source emissions of sulfur oxides and extremely malodorous sulfur compounds (mercaptans, hydrogen sulfide, etc.) result in localized excessive ground level concentrations that cause detriment to the health and welfare of the community.

It is therefore recommended that:

1) Standards be established which would limit emissions of sulfur dioxide to 2000 ppm at existing sources and 500 ppm at new sources. Dilution or diffusion of exhaust gases shall not be considered an acceptable means of meeting this standard (sulfur recovery plants are to be exempted).

2) All sources emitting odorous or offensive sulfur compounds shall be controlled to the extent that no nuisances are created, and legal enforcement and inspection programs be rigorously prosecuted so as to assure good operating practices to the end of minimizing accidential or inadvertant releases of such compounds.

3) As agreed by the Conference participants, the State of New Jersey, when applying Chapter VIII of its Air Pollution Control Code, which becomes effective March 1, 1967, shall assign first priority to the nine New Jersey counties in the 17-county interstate metropolitan area, and that the State of New Jersey will submit to the Presiding Officer, no later than June 1, 1967, a progress report delineating the steps taken in this regard.

RECOMMENDATION VI
CONTROL OF CARBON MONOXIDE EMISSIONS

It is found that:

a) Evidence is inadequate to establish interstate transport of carbon monoxide, but concentrations in localized areas approach limits specified in recognized air quality standards.

b) Available air quality data do not adequately identify the maximum levels and frequencies to which many persons are exposed.

c) Ninety-five per cent of the carbon monoxide is emitted from motor vehicles operating throughout the 17-county area.

d) There are only two significant process sources of carbon monoxide in the metropolitan area--Hess Oil Company and California Oil Company in Sewaren and Perth Amboy, New Jersey, respectively. Hess Oil Company emits 79,000 tons and the California Oil Company emits 75,000 tons of carbon monoxide annually. Using accepted diffusion equations, it is computed that maximum short-term ground-level concentrations from these plants under varying meteorological conditions will range from 6.0 ppm carbon monoxide, 8 kilometers from the source, to 167 ppm carbon monoxide, 4/10 kilometers from the source.

e) Federal and State regulations will require exhaust controls on all new 1968 model-year and later automobiles and light trucks, with an anticipated reduction in carbon monoxide emissions.

f) The State of New Jersey already has adopted legislation and is implementing a control program for reducing atmospheric carbon monoxide levels.

g) It is technologically feasible to reduce carbon monoxide emissions from used motor vehicles, and it is possible to develop and implement other actions that would reduce emissions in presently congested areas.

It is therefore recommended that:

1) The States continue to monitor atmospheric levels of carbon monoxide, particularly in locations where maximal levels are expected to occur, and that they advise the Secretary of Health, Education, and Welfare of any apparent need for more stringent control of new motor vehicle emissions.

2) Individual jurisdictions should continue to give consideration to the necessity and means for reducing atmospheric carbon monoxide levels.

3) That, as suggested by the Conference participants, the State of New Jersey urge Hess Oil Company and California Oil Company to control their contributions to localized carbon monoxide levels. In accordance with good engineering practice, waste heat boilers can be installed economically to serve this purpose.

RECOMMENDATION VII
CONTROL OF EMISSIONS FROM THE ABEX CORPORATION - MAHWAH, NEW JERSEY

It is found that:

Emissions from the Abex Corporation in Mahwah, New Jersey, are transported from the State of New Jersey into the State of New York and cause air pollution problems consisting of odors and impaired visibility and of objectionable levels of particulate matter in the vicinity of Suffen, New York. Cognizance is taken of the remedial measures being undertaken by the Corporation, which are expected to meet the air pollution control requirements of the State of New Jersey by August 1, 1967. There is no assurance that the proposed installation will adequately reduce emissions from the plant so as not to cause or contribute to air pollution which endangers the health and welfare of persons in the State of New York.

It is therefore recommended that:

1) The time schedule for the abatement of emissions agreed to between the Abex Corporation and the State of New Jersey be adhered to strictly.

2) The States of New Jersey and New York mutually arrange to undertake surveillance of the operation and effectiveness of the controlled process, after it is installed for a period of at least 60 days, and report in writing to the Presiding Officer of the Conference (or the Chairman of the continuing session) the results of such surveillance within 75 days for such further consideration and action, if any, as may be necessary.

CONFERENCE SUMMARY

Pursuant to an initial request from the Governor of the State of New York, and to subsequent actions taken upon his own initiative, the Secretary of Health, Education, and Welfare, under provisions of Sections 105 (c)(1)(A) and 105 (c)(1)(C) of the Clean Air Act, called an Interstate Air Pollution Abatement Conference in the 17-county New York-New Jersey metropolitan area, comprising the following counties: In New York--Rockland, Westchester, Nassau, Queens, Kings, Bronx, Richmond, and New York; in New Jersey--Monmouth, Middlesex, Somerset, Morris, Passaic, Bergen, Essex, Union and Hudson. This Conference was related to air pollution originating in each of the two States and which was alleged to endanger the health and welfare of persons in the other State.

The Conference was held at the Statler Hilton Hotel, New York City, from January 3 through January 13, 1967, with an additional meeting day on January 19, 1967, and was concerned primarily with sulfurous compounds and carbon monoxide.

Mr. S. Smith Griswold of the Department of Health, Education, and Welfare served as Presiding Officer, and the following acted as official conference participants of their respective agencies during all or portions of the Conference:

Dr. Hollis S. Ingraham	New York State Department of Health
Dr. Roscoe P. Kandle	New Jersey State Department of Health
Dr. Natale Colosi	Interstate Sanitation Commission
Mr. William H. Megonnell	U. S. Department of Health, Education, and Welfare
Mr. Walter M. Scott	Mount Vernon, New York, City Health Department
Mr. Robert D. Cusumano	Nassau County, New York, Department of Health
Mr. Austin N. Heller	New York City, Department of Air Pollution Control
Mr. Arthur H. Klein	New Rochelle, New York, City Health Department

Mr. Donald E. Grosso	Rockland County, New York, Health Department
Mr. Calvin E. Weber	Westchester County, New York, Health Department
Mr. Richard Paccione	Yonkers, New York, City Department of Health
Mr. Paul H. Reilly	Newark, New Jersey
Hon. J. P. Rice	Suffern, New York

Some 90 persons participated in the Conference proceedings as delegates, staff or invitees of the official agency participants. These are listed in Appendix A.

The official Conference participants, after study and discussion of the extensive information presented (which provided a transcript nearly 1600 pages long) unanimously reached three general conclusions, and set forth seven recommendations, all but one of them with unanimous agreement. Even respecting the latter, there was unanimous concurrence in principle.

The full text of the Conclusions is presented as Appendix B. Following is a summary of the most pertinent statements and information relating to the specific major points involved.

CONCLUSIONS

Section 105 (c)(3) of the Clean Air Act requires a Conference summary to include statements regarding:

1) The occurrence of air pollution subject to abatement under the Act;

2) The adequacy of measures taken toward abatement of the pollution; and

3) The nature of delays, if any, being encountered in abating the pollution.

Occurrence of Pollution Subject to Abatement

It was concluded unanimously that there is occurring interstate air pollution endangering the health and welfare of persons in New York and New Jersey, respectively, and said pollution is subject to abatement under Section 105, Title I, of the Clean Air Act (42 U.S.C. 1857, et seq.).

There was extensive meteorological and photographic evidence that pollution originating in New Jersey is transported into New York, and that pollution originating in New York is transported into New Jersey. Transport in both directions was demonstrated by four professional meteorologists--one a consultant to the State of New York, one a consultant to the U. S. Public Health Service, one a consultant to both, and one a member of the U. S. Public Health Service. Official conference participants of each State also agreed that bilateral transport of air pollution occurs.

The causation or contribution to conditions that endanger health or welfare was abundantly demonstrated by a variety of experts in many fields, speaking on behalf of all of the official participants individually.

The New Jersey Turnpike Authority showed that air pollution contributes to visibility restrictions that endanger the safety of traffic or, alternatively, result in economic loss from decreased toll revenues occassioned by closing the Turnpike because of lowered visibility.

Representatives of the Airline Pilot's Association, the Air Transport Association of America, and the Federal Aviation Agency showed that decreased visibility due to air pollution demands special measures to ensure safety of aircraft operations. Those measures result in costly delays at the local airports and additional adverse impact on areas far removed from the local airport because of disrupted traffic schedules at other terminals.

Widespread damage to vegetation by sulfur dioxide occurs throughout the area. The extent of such damage to ornamental plants and shrubs, thereby reducing their esthetic value, and the reduction in vigor and consequent salability of economic crops, was demonstrated and illustrated by two renowned research professors from Rutgers University. An expert from the U. S. Public Health Service presented data to show that such damage was found during the summers of 1965 and 1966 at various locations in the 17-county area, both on experimentally grown plant species and on indigenous vegetation.

Deterioration, damage, and destruction of materials, including historical and architectural art objects and monuments, was attested to by several experts in their respective fields.

A representative of the Metropolitan Museum of Art, and a noted archeologist in his own right, described the air pollution damage that causes irrevocable losses to works of art, and specified in much detail the varied aspects this damage may take and the problems

encountered in attempting to protect these valuable heritages. He pointed out also, that such damage also occurs to other works such as grave markers, with the obvious attendant sorrow of the family and friends.

In a related vein, the Port of New York Authority detailed the impact of air pollution on the Authority's 24 public facilities representing an investment of almost 2 billion dollars. Requirements for ventilating tunnels and terminals are more stringent because of the additional quantities of pollutants in the ambient air. Evidence was cited to indicate the adverse effect on the costs of all types of maintenance--custodial, structural, mechanical, and electrical.

Additional economic loss to the community was pointed up by the building manager of the Pan Am Building. Air pollution was found to have adverse economic effects in three operational areas: air conditioning systems,housekeeping, and soilage of the building exterior. Protection of the air conditioning system, alone, against corrosion by contaminant elements was estimated to cost some $4,000 annually per million square feet of office building space. Labor costs for housekeeping were estimated to be 15 per cent higher than similiar costs in less polluted areas. Exterior cleaning is required twice as often as in cleaner cities, and the annual cost of window cleaning is four times greater.

These same types of economic losses were cited by a New York real estate broker specializing in commercial office leasing and mortgaging, who noted that experiences at the Pan American Building are generally typical of office and residential buildings throughout the area.

A related economic impact was noted by the Staten Island Chamber of Commerce, which underscored the difficulties of attracting commercial enterprises to an area suffering from air pollution.

The total economic burden to the 17-county bi-State area was detailed by a consultant in Environmental Health and Safety to the U. S. Public Health Service, who made a thorough analysis and evaluation of the myriad factors involved. This study provided minimal answers, because it did not include estimates for a number of factors such as maintenance of masonry and metal parts of buildings, deterioration and replacement of linens and similar articles in the home, automobile maintenance, extra lighting costs required by smog-darkened skies, agricultural losses, costs of health effects, and cleaning and maintenance of public facilities.

Even so, this study indicated that the annual cost of air pollution in the 17-county area is 3 billion dollars. This is an average of $200 per person per year, or an average of $620 per year per family.

Under an assumption, based on experience elsewhere, that the costs of total air pollution control would average about $25 annually per family, it was pointed out that controlling air pollution would save the average family about $600 per year in out-of-pocket expenses.

The vast impact on the health of persons in the area was described by many medical experts, based upon evidence from research, epidemiological studies, and clinical experience. Each of the statements expressed the deep concern held by the medical profession about the effects of air pollution on health. The following distinguished authorities on various facets of the medical aspects of air pollution provided information bearing upon the situation in the area:

Dr. Richard A. Prindle
Assistant Surgeon General and Director,
Bureau of Disease Prevention and Environmental Control
U. S. Public Health Service

Dr. Leonard Greenburg
Professor and Chairman, Department of Preventive and Environmental Medicine, Albert Einstein College of Medicine of Yeshiva University, New York, and former Commissioner of Air Pollution Control, City of New York

Dr. Eric Cassell
Associate Professor of Community Medicine,
Mt. Sinai School of Medicine

Dr. Edward H. Robitzek
Director of Medical Services, Sea View Hospital
Staten Island

Dr. Stephen Ayres
Director of the Cardiopulmonary Laboratory,
St. Vincent Hospital, New York City

Dr. William H. Becker
Clinical Instructor in Medicine, Downstate Medical Center, State University of New York, and Director of Research, The Continental Research Institute, New York City

Dr. Roslyn Barbash
Chairman of Special Committee on Air Pollution of the Public Health Council of the New Jersey State Medical Society

Dr. Frank Rosen
Chairman of the Air Pollution Committee of the
Essex County (New Jersey) Medical Society

Dr. Norman J. Ashenburg
Chairman of the Committee on Environmental Health
of the Medical Society of the State of New York

Robert D. Ragsdale
Executive Director, New York State Tuberculosis
and Respiratory Disease Association, Inc.

The burden of the material presented may be briefly summarized:

1) Past incidents of especially elevated levels of air pollution in these areas have been proved to have resulted in hundreds of excess deaths.

2) Hospital admittances and clinic visits for relief from respiratory ailments clearly are related to increases in air pollution levels.

3) Respiratory and cardiac cripples are adversely affected by present, day-to-day air pollution levels.

4) Long-term exposure to present air pollution levels results, and has resulted, in increases in the incidence of respiratory ailments such as pulmonary emphysema, asthma, and bronchitis.

5) The air quality objective for sulfur dioxide, adopted by the New York State Air Pollution Control Board for the New York portion of the abatement area, and recommended by the Public Health Service, is continuously exceeded.

On the clinical side, it is worthwhile to consider the statement of Dr. Robitzek (Tr. 309), who appeared as an invitee of the State of New York:

"My clinical experiences with thousands of patients with pulmonary insufficiency, bronchial asthma, bronchitis, bronchiectasis, emphysema, pulmonary neoplasm, associated with cardiac insufficiency and a variety of other conditions associated with disturbances of pulmonary and cardiac functions have led me to the firm conclusion that contamination of the air we breathe aggravates, often fatally, the underlying condition. Indeed, I cannot exclude the possibility that such contamination does not actually initiate it."

Similarly, the position of the cognizant epidemiologist, who also is knowledgeable in the air pollution field generally, was perhaps best stated by Dr. Greenburg:

> "It is clear that New York air, judged from the point of view of the sulfur dioxide concentration, is just almost beyond belief." (Tr. 1072).

Adequacy of Measures Taken Toward Abatement

The official Conference participants concluded that insufficient and inadequate action has been taken toward abatement of interstate air pollution in the 17-county New York-New Jersey metropolitan region.

Each of the States has adopted various types of rules, codes, regulations, and procedures to deal with air pollution within its jurisdiction. New York City, also, has an extensive air pollution control code, while some other local agencies have taken beginning steps in this regard.

The representative for the State of New York noted that that State has no emission standards for sulfur compounds.

Alternatively, the City of New York has established limits on the sulfur content of fuels. These, however, do not reach their most stringent limit until 1971 and, of course, apply only to the City. Additionally, as presently specified, they will not acheive the adopted air quality objective.

The State of New Jersey recently enacted a regulation providing emission standards for sulfur compounds effective March 1, 1967. However, it specifically exempts sulfur emissions from the combustion of fuels--the major source of emissions of sulfur dioxide.

There exists an Interstate Sanitation Commission, which is a joint agency of the States of New York, New Jersey, and Connecticut. However, its air pollution program relates only to the States of New York and New Jersey, because Connecticut does not authorize the Commission to engage in air pollution work on its behalf. The Chairman of the Commission pointed out that, insofar as air pollution is concerned, the Commission's authority is limited to gathering information, making field surveys and inspections, and referring complaints and detected cases of interstate air pollution to the relevant State. Its legal authority, however, goes only this far, so there is no interstate authority to establish uniform air pollution control regulations or to ensure coordinated uniform enforcement against all pollution sources located within the area.

Causes of Delay in Abating the Pollution

The causes of delay in abating the pollution stem largely from the lack of an adequate interstate instrumentality, as described above. As the Chairman of the Interstate Sanitation Commission pointed out:

> "The air pollution problem in the Greater New York metropolitan area has local, intrastate and interstate dimensions." (Tr. 858).

The official representative from the State of New York also noted:

> "If we were to claim that elimination or strict control of pollution sources in New Jersey would completely eliminate New York State's problems, we would fool no one but ourselves." (Tr. 397).

RECOMMENDATIONS

The Conference participants reached unanimous agreement on seven recommendations, except that the Department of Health, Education, and Welfare abstained with respect to a portion of one of them.

One recommendation relates to implementation of an interstate regional agency. Three are addressed to phases of the sulfur oxides problem traceable to the combustion of sulfur-bearing fuels, and one is directed toward emissions of sulfur compounds from industrial processes. Another relates to the control of carbon monoxide. The last is aimed at a specific industrial plant located in New Jersey that emits air pollution which subsequently is transported to a community in New York.

Each of these recommendations is discussed below in the context of the Conference proceedings and the relevant statements, data, and presentations.

Recommendation I: Interstate Air Pollution Control Agency

There was unanimous concensus that an interstate air pollution control agency is needed to cope with the bi-State air pollution complex.

At the very outset of the Conference, the need for this sort of approach was voiced by many of the elective officials of the two States. The theme was repeated by the official participants, and underscored by many of the scientific and technical presentations.

It was agreed also that there should be uniform standards of air quality and emissions, and uniformity in inspection and enforcement functions. Indeed, the Governor of the State of New York informed the conference that the Governors of New Jersey, Pennsylvania, Delaware, and New York, at the recent Governors' Conference, had agreed to develop common standards and enforcement procedures in the field of air pollution so that there could be no "pollution havens from enforcement legislation."

In most instances, the presentations did not specify detail of the potential composition of such an agency, and it is on this point that unanimity was not evident. Thus, the official participant for the State of New York expressed the opinion that the present Interstate Sanitation Commission should be expanded and vested with the requisite authority. The official representative for the State of New Jersey did not specify in the record an organizational preference. However, two of his invitees--the New Jersey State Chamber of Commerce and the New Jersey Petroleum Council--recommended that the present Commission serve as a vehicle for coordinating air pollution abatement efforts in the region.

The official representative of the Interstate Sanitation Commission also joined in the recommendation.

Alternatively, the official representative of the City of New York recommended that the Metropolitan Regional Council serve in the recommended capacity.

Although not specifying a precise organization, Senator Kennedy and Congressman Ryan each evinced the belief that any regional agency should include Federal representation.

The official representative of the Department of Health, Education, and Welfare, too, expressed the view that such an agency should provide for Federal representation, to obviate the need for calling further conferences and to allow for pooling resources to bring all possible effort to bear on the problem. The Department representative also noted that past activities of the Commission have not been effective in abating pollution, largely because of legislative, administrative, and budgetary limitations imposed by the supporting States.

Recommendations II and III: Control of Emissions of Sulfur Dioxide from Power Generation Plants

All official participants concurred in the need for control of sulfur oxide emissions from plants generating steam and power for sale and in the means for bringing about the necessary reductions.

The use of sulfur-bearing fuels in power generation plants was shown to produce 39 per cent of the total quantity of sulfur oxides emitted in the 17-county area. New York City regulations require that fuels containing no more than one per cent sulfur by weight be used, beginning in 1971. However, a representative of Consolidated Edison Company indicated that fuel oil suppliers have suggested that substantial qualities of residual oil meeting that standard could be made available prior to that time.

Photographic, meteorological, and air sampling evidence and data depicted that emissions from power generating plants at times may reach the breathing zone close to the plant, but at other times may be carried many miles from the source and mingle with the contaminants issuing from the myriad other sources in the area.

It was shown also, as indicated earlier, that present atmospheric levels of sulfur dioxide far exceed the criterion of a 24-hour average

of 0.1 ppm for one per cent of the time and that to reduce ambient air quality levels to this point would require an overall reduction in emissions of slightly more than 80 per cent.

Consideration of the differential emission values and quantities, the availability and practicalities of fuel supply patterns, and the requirements for overall emission reductions, led to the engineering evaluation that the sulfur content of fuels used by power generating plants in the 17-county region be lowered to one per cent, or less, by weight, by October 1, 1969.

It was further agreed that projected growth in population, commercial and industrial activities, and general energy use would impose demands for increased power generation. Considering the existing pattern of emissions and the requirements for reduction, as well as the growth in other pollution-producing activities of the community, it was agreed that the additional burden of emissions from increased power generation could not be tolerated at even the recommended lower fuel-sulfur levels.

Accordingly, it was recommended that new power generating facilities, or expansion of present facilities, should be required to meet even more stringent standards to ensure tolerable air quality levels.

Recommendation IV: Control of Emissions of Sulfur Compounds from Space Heating

The data obtained through the cooperative efforts of the technical engineering staffs of the States of New York and New Jersey, the City of New York, and the U. S. Public Health Service showed that sulfur dioxide emissions from space heating in the area constituted more than 50 per cent of the total emissions on an annual basis. In some parts of the area the contribution is even greater, depending upon the distribution of source classifications. Moreover, these emissions have greater relative impact than comparative annual percentages indicate because they are concentrated in the colder months of the year. Additionally, as shown by authoritative meteorological investigations, contaminants are emitted from these sources at elevations closer to the ground with a concomitant enhanced impact.

The fuels used for space heating range from heavy residual fuel oil containing high quantities of sulfur, through lighter distillate oils with lower sulfur content, to natural gas, which contains essentially no sulfur. Characteristically, space heating equipment is less efficient than the enormous electric generator boilers.

Evidence presented by local utility companies and by gas pipeline companies serving the area indicated that, given appropriate incentives, it would be possible to provide low-sulfur fuels, such as natural gas and distillate oil, to this class of fuel user.

Representatives of the oil industry decried any wholesale substitution of present fuels by low-sulfur fuels, largely on the basis that such substitution would have an adverse economic effect on the community. However, in the context of the detailed economic analysis that showed the daily per capita loss due to air pollution effects to be a minimum of 55 cents, technical data showed that fuel substitution and desulfurization costs would range from 2 to 14 cents per person per day, or oil containing 0.3 per cent sulfur or less.

Upon due consideration of the several economic and sociologic factors, the emissions statistics, and the clear need for substantial abatement, it was concluded and recommended by all official participants that fuels used for space heating or for other domestic, commercial, and industrial uses should be natural gas, coal containing 0.3 per cent sulfur or less.

Recommendation V: Control of Sulfur Compounds from Industrial Processes

It was demonstrated by the official representative of the State of New York, and various invitees of that State, that sundry industrial concerns located in New Jersey engage in manufacturing operations that emit a variety of sulfurous compounds resulting in localized excessive ground level concentrations. These may be relatively high concentrations of such contaminants as sulfur dioxide, sulfur trioxide, or sulfuric acid mist. They may be lower concentrations of extremely malodorous compounds such as mercaptans, hydrogen sulfide, or the like, which can produce a detectable stench at extremely low concentrations.

An engineering analysis of the recently enacted New Jersey code limiting emissions of sulfur compounds indicated that strict enforcement of this legislation will ameliorate some of these problems. In other cases, however, it is doubtful that relief will be afforded. This is especially true of substances causing malodors.

The Conference participants, in recognition of these facts, thereby recommended that standards should be established to limit emissions of sulfur dioxide from existing industrial processes to 2000 ppm, and to 500 ppm from potential sources constructed in the future. It was noted that the state of the art enables these limitations to be met.

On the other hand, many compounds can create odor problems at far lower concentrations, and it was agreed that, in many cases, releases of such substances are not a normal abjunct to the process but are due to inadvertence or poor operating practices. Thus, it was further agreed that appropriate measures should be taken to avoid such occurrences and emissions.

Recommendation VI: Control of Carbon Monoxide Emissions

A thorough review of air quality levels at the sites where carbon monoxide was monitored indicated that concentrations in the general community environment were lower than the currently recognized air quality standards. It was noted that these measurements were not made in locations or at sites where higher concentrations frequently could be expected because of recurring traffic congestion. This latter factor was of concern because it was determined that 95 per cent of the emissions of carbon monoxide are attributable to motor vehicle operation. In addition, medical opinion was presented that suggested carbon monoxide may have adverse effects on public health at much lower concentrations that the levels accepted and established by some local and State agencies in this country at the present time.

The Conference participants thereby recommended that the States continue to exercise surveillance over atmospheric carbon monoxide levels, especially in those locations where maximal levels could be anticipated, and that the monitored levels be scrutinized carefully to determine any future need for more stringent control of motor vehicle emissions.

The engineering data pinpointed two refineries in New Jersey as major point sources of carbon monoxide potentially capable of contributing to locally high atmospheric carbon monoxide levels under certain meteorological conditions. The Conference participants noted that standard engineering approaches are available, and used elsewhere in the industry, to control such emissions economically.

Recommendation VII: Control of Emissions from the Abex Corporation, Mahwah, New Jersey

A number of residents of the city of Suffern, New York, as well as the official representatives from that State, presented air sampling data and other evidence relating to the adverse effect on the health and welfare of residents in that community alledegly caused by air pollution emissions from the Abex Corporation located in Mahwah, New Jersey.

The official representative of the State of New Jersey noted that action under that State's Air Pollution Code--more specifically Chapter VII, which was enacted on October 1, 1964-- already has been taken and a schedule established for abatement. The Chairman of the Board of Directors of the Corporation stated that the control equipment approved by the State of New Jersey would be operational by August 1, 1967.

Taking cognizance of these facts, the Conference participants, unanimously recommended that the time schedule be strictly adhered to and that the two States mutually arrange surveillance of the operation after controls have been installed for 60 days and that they report in writing to the Presiding Officer of the Conference within 75 days concerning the adequacy of the abatement measures.

APPENDIX A

DELEGATES, STAFF, AND INVITEES PARTICIPATING IN THE NEW YORK-NEW JERSEY METROPOLITAN AREA INTERSTATE AIR POLLUTION ABATEMENT CONFERENCE

Acken, Albert H., Executive Vice-President of the N.J. State Chamber of Commerce

Ashenburg, Dr. Norman J., Chairman, N.Y. State Action for Clean Air Committee

Ayers, Dr. Stephen, Director, Cardiopulmonary Laboratory of St. Vincent's Hospital in New York City

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Cousins, Norman, Chairman, Task Force on Air Pollution of the Mayor of New York City

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Parsekian, Hon. Ned J., New Jersey State Senator

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Wydler, Hon. John W., U.S. Representative from State of New York

APPENDIX B

GENERAL CONCLUSIONS
REACHED BY OFFICIAL PARTICIPANTS
NEW YORK - NEW JERSEY METROPOLITAN AREA
INTERSTATE AIR POLLUTION ABATEMENT CONFERENCE

A. Occurrence of Air Pollution Subject to Abatement under the Clean Air Act

1. The predominant portions of air pollutants present in the State of New York and in the State of New Jersey are discharged within each respective State, and each would have a serious air pollution problem without the existence of the other. Also, however, pollutants discharged to the atmosphere in the State of New Jersey cross the boundary into the State of New York, and pollutants discharged to the atmosphere in the State of New York are transported into the State of New Jersey; hence, indigenous air pollution in either State is increased by transport of pollutants from the other State.

   The interstate New York-New Jersey metropolitan area, in fact, has a common air mass and any discharge of pollutants into that air mass, regardless of point of discharge, causes or contributes to air pollution and may be carried indiscriminantly throughout the area, subject to the vagaries of wind and weather.

   The material presented at the conference establishes that such interstate movement of air pollutants includes particulate matter, sulfur oxides, hydrogen sulfide, mercaptans, and other compounds; but the record is insufficient to establish interstate movement of carbon monoxide.

2. Interstate air pollution in the New York-New Jersey metropolitan area causes or contributes to conditions which endanger health or welfare, as follows:

   a. It results in visibility restrictions endangering the safety of persons in interstate travel, both by land and by air, and it causes inconvenience and economic loss to the public and to transportation companies, due to disruption of traffic schedules.

   b. It causes damage to vegetation, including ornamental vegetation, with a consequent substantial economic and esthetic loss.

   c. It results in the deterioration, damage and destruction of materials and property, including historical and architectural art objects and monuments, requiring additional expenditures for maintenance and replacement of materials.

d. It has multiple adverse economic effects of business and commerical operations.

e. The levels of sulfur dioxide monitored have been demonstrated to exceed consistently the objectives for 24-hour sulfur dioxide concentrations in community atmospheres adopted by the New York State Air Pollution Control Board for the New York State portion of the interstate metropolitan area, which also are recommended by the United States Public Health Service, (0.1 ppm 24-hour average of sulfur dioxide not to be exceeded more than one per cent of the time).

f. At times, the actual concentrations of air pollutants in considerable portions of the area are at or above levels which have been observed in community situations to result in increased illness. Under certain meteorological conditions, these levels could, and have in the past, contributed to excess deaths.

3. Such interstate air pollution endangers the health and welfare of persons in New York and New Jersey, respectively, and is therefore subject to abatement under Section 105, Title I of the Clean Air Act (42 U.S.C. 1857, et seq.).

B. Adequacy of Measures Taken Toward Abatement of Air Pollution

Insufficient and inadequate action has been taken toward abatement of interstate air pollution in the 17-county New York-New Jersey metropolitan area.

There is no interstate regional agency with adequate authority to establish uniform air pollution control regulations and to assure coordinated uniform enforcement against all pollution sources located within the area.

The following actions relating to prevention, control and abatement of sulfurous air pollution have been taken by various jurisdictions in the bi-State metropolitan area:

Chapter VIII of the New Jersey State Air Pollution Control Code, which becomes effective March 1, 1967, limits the concentration and rate of emission of sulfurous compounds from industrial process operations. The conference has been assured that

Chapter VIII will be vigorously enforced by the State of New Jersey. While this Chapter will prevent or eliminate some localized problems associated with industrial sulfurous emissions, it is not applicable to fuel-burning sources, which discharge more than 92 per cent of the total sulfur oxides emitted in New Jersey. Chapter VII will in no way abate the emission of sulfurous compounds from fuel burning, and it is doubtful that it will abate interstate air pollution from certain industrial process sources. Conference participants for the State of New Jersey are of the opinion, however, that the limitations on emission of sulfurous compounds from industrial process sources will be effective in eliminating problems caused by the interstate transport of sulfurous pollution from such sources.

The Interstate Sanitation Commission identifies point sources of interstate air pollution, investigates complaints, and supplies information to State and local agencies that is used in enforcement proceedings.

A New York City gas distributor, Brooklyn Union Gas Company, encouraged and supported by the New York City Department of Air Pollution Control, offers to large installations a special temperature-controlled, interruptible gas-distillate fuel oil rate. This system, if widely adopted, very significantly can reduce, at some increased cost, the sulfur-oxide emissions from non-power generating sources. It is unlikely that large-scale conversions to this system will be made voluntarily, however, and there was no indication that other gas utilities in the area intend to offer similar service. New York City is planning to convert the space heating of its municipal facilities to this system.

The City of Newark has announced that space heating for several of its municipal facilities will be provided by burning low-sulfur No. 2 distillate oil, instead of high-sulfur No. 6 residual oil.

The State of New York has adopted a system of ambient air quality objectives and, accordingly, has classified New York City and the surrounding New York counties of the metropolitan area. Also, it has adopted Rules to Prevent New Air Pollution, whereby it reviews and approves plans for construction or major reconstruction of facilities which may increase, decrease of alter air pollutant emissions. Under new authority, the New York State Air Pollution Control Board is empowered to promulgate emission standards and to regulate composition and use of fuels throughout the State.

New York City's Local Law 14 requires stepwise reduction in the maximum allowable sulfur content of fuels to one per cent by 1971. The local electric utility, Consolidated Edison Company, which emits about 50 per cent of the sulfur oxides in New York City, has been cooperating with City authorities by attempting to reduce sulfur content of its fuels well in advance of the mandatory schedule. Further, Consolidated Edison has submitted to the City a ten-year plan whereby its sulfur-oxide emissions to the City atmosphere would be significantly reduced; and, at the request of the City, Consolidated Edison has sought and found a means whereby low-sulfur oil can be obtained for use in its plants during the winter heating season when air pollutant concentrations in the New York-New Jersey area are highest. There is nothing in the record to show that similar action has been requested of or initiated by Consolidated Edison's counterparts in the New York portion of the interstate area or by Public Service Electric and Gas Company and Jersey Central Power and Light Company in the New Jersey portion.

Several municipalities in the metropolitan area have adopted and others contemplate the adoption of rules and regulations specifically designed to reduce sulfur-oxide emissions.

While each of these actions is designed to cope with a portion of the sulfur-oxide problem, they will not, individually or collectively, sufficiently alleviate this serious problem through the New York-New Jersey interstate metropolitan area to a point where health and welfare are not endangered.

C. Causes of Delay in Abating the Pollution

The States of New York and New Jersey have not conferred adequate authority in an interstate agency for adoption and enforcement of uniform standards and regulations. Consequently, standards, regulations and enforcement measures are neither uniform nor aimed at a common objective. Activities undertaken by individual jurisdictions in each State are designed to cope with portions of the problem arising within their borders; even if such actions were totally effective in abating pollution arising in a given jurisdiction, however, that jurisdiction still could suffer from air pollutants reaching it from other portions of the metropolitan area.

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